

Biochemical Characterization of Plant Growth Promoting Rhizobacteria Colonizing Rhizoplane Soil of Rice

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ABSTRACT

Plant growth promoting rhizobacteria (PGPR) are a group of bacteria that can be found in the rhizosphere, in association with roots and which can enhance the growth of plants directly or indirectly. A large number of bacteria, including species of *Pseudomonas*, *Azospirillum*, *Azotobacter*, *Klebsiella*, *Enterobacter*, *Alcaligenes*, *Arthrobacter*, *Burkholderia*, *Bacillus*, *Klebsiella*, *Rhizobium* and *Serratia* have been reported to enhance plant growth. Different biochemical tests *viz.*, catalase test, oxidase test, nitrate reduction test, methyl red test, vouges proskauer test, ammonia production, citrate utilization, urease activity, hydrogen sulfide production and gelatin liquefaction were performed for a set of 63 bacterial isolates that were obtained from rhizoplane soils of rice. Among the 63 bacterial isolates, all were tested positive for the catalase test, 37 were positive for the nitrate reduction test and the VP test, 48 found to be positive for the oxidase test, 43 isolates exhibited positive reactions for citrate utilization and urease activity, 42 were positive for the methyl red test, 46 exhibited ammonia production, 35 were able to liquefy gelatin and 10 were positive for the hydrogen sulphide test.

Keywords: *Biochemical characterization, PGPR, Rice.*